

Mars.—Saturn.											
No. of Obs.	G.M.T. of Observation.			Corr. for Par. Refrac.		Diff. in R.A. Corrected.	Corr. for Par. Refrac.		Diff. in N.P.D. Corrected.	Reduced to 17 ^h 30 ⁱ Diff. in R.A.	
	h	m	s	s	s		"	"		s	N.P.D
1	17	9	6	-0.11	-0.04	-13.27	-1.96	-0.2	-2 10.1	-11.55	-2
2	17	13	3	-0.11	-0.04	-13.04	-1.96	-0.2	-2 7.2	-11.65	-1 50
3	17	23	2	-0.11	-0.03	-12.14	-1.94	-0.2	-2 5.4	-11.57	-2
4	17	27	3	-0.11	-0.03	-11.79	-1.93	-0.2	-2 2.9	-11.55	-2
5	17	29	3	-0.11	-0.03	-11.74	-1.93	-0.1	-2 1.0	-11.66	-2
6	17	31	4	-0.11	-0.03	-11.47	-1.92	-0.1	-1 59.9	-11.56	-2
7	17	33	6	-0.11	-0.02	-11.33	-1.92	-0.1	-1 58.8	-11.58	-2
8	17	35	3	-0.11	-0.02	-11.25	-1.92	-0.1	-1 58.0	-11.67	-2
9	17	37	2	-0.11	-0.02	-11.05	-1.92	-0.1	-1 57.4	-11.63	-2
10	17	39	3	-0.11	-0.02	-10.91	-1.91	-0.1	-1 57.0	-11.65	-2
11	17	41	3	-0.11	-0.02	-10.51	-1.91	-0.1	-1 56.6	-11.42	-2
12	17	43	3	-0.11	-0.02	-10.43	-1.91	-0.1	-1 56.5	-11.50	-2
13	17	45	1	-0.11	-0.02	-10.38	-1.90	-0.1	-1 55.8	-11.61	-2
14	17	47	4	-0.11	-0.02	-10.08	-1.90	-0.1	-1 55.1	-11.48	-2
15	17	51	2	-0.10	-0.02	- 9.85	-1.89	-0.1	-1 52.6	-11.58	-2
16	17	53	2	-0.10	-0.02	- 9.75	-1.89	-0.1	-1 50.7	-11.64	-2
17	17	55	2	-0.10	-0.02	- 9.50	-1.89	-0.1	-1 50.0	-11.56	-2
18	17	57	3	-0.10	-0.02	- 9.25	-1.88	-0.1	-1 47.0	-11.47	-1 5
19	17	59	4	-0.10	-0.02	-(9.65)	-1.88	-0.1	-(1 47.6)-(12.04)	-(2 0	
Mean										-11.574	-2 1

A positive eyepiece, power 130, was employed throughout.

Observations of the Occultation of Jupiter by the Moon, made at the Royal Observatory, Greenwich, 1889 August 7.

(Communicated by the Astronomer Royal.)

Phenomenon.	Telescope.	Power.	Moon's Limb.	Mean Solar Time of Observation.	Observer.
(a) Disapp. First contact	S.E. Eq.	60	Dark	h m s 7 4 34.33	W. C.
(b) „	E. Eq.	70	„	7 4 36.19	C.
„	Simms' No. 1	75	„	7 4 28.97	S. D.
(c) Last contact	S.E. Eq.	60	„	7 6 5.33	W. C.
(d) „	E. Eq.	70	„	7 6 10.92	C.
„	Simms' No. 1	75	„	7 6 7.97	S. D.
(e) Reapp. First contact	S. E. Eq.	200	Bright	7 59 56.37	W. C.
(f) „	E. Eq.	70	„	7 59 54.59	C.

Phenomenon.	Telescope.	Power.	Moon's Limb.	Mean Solar Time of Observation.	Observer.
				h m s	
First contact	Altaz.	100	Bright	7 59 54.49	J. P.
"	Simms' No. 1	75	"	7 59 52.26	S. D.
(g) Last contact	S.E. Eq.	200	"	8 1 39.09	W. C.
(h) "	E. Eq.	70	"	8 1 34.81	C.
"	Altaz.	100	"	8 1 37.70	J. P.
"	Simms' No. 1	75	"	8 1 38.76	S. D.
Reapp. Satellite II.	Lassell Refl.	280	"	8 6 15.17	H. T.
"	E. Eq.	70	"	8 6 17.03	C.
"	Simms' No. 1	75	"	8 6 18.78	S. D.
Satellite IV.	Lassell Refl.	280	"	8 18 57.18	H. T.
"	Simms' No. 1	75	"	8 20 31.85	S. D.

Notes.

- (a) *Jupiter* faint and time uncertain to several seconds.
 (b) Observation not easy owing to the faintness of *Jupiter*.
 (c) Observation satisfactory.
 (d) The dark limb of the Moon was very distinct as seen on *Jupiter*. This observation considered better than first contact.
 (e) Probably a little late; *Jupiter* very much fainter than the Moon.
 (f) Probably a little late; reappeared earlier than expected.
 (g) Shortly before last contact there appeared to be a narrow dark band forming an outline to the Moon's limb on the much fainter disk of *Jupiter*. At about 8^h 1^m 37^s this band began to grow darker and the first black separation between the limbs was seen at the time given for last contact, but only in the middle of the narrow band. Four seconds later the band had become black all over, and began to widen rapidly. The appearances were similar to the description of the black drop in the Transit of *Venus*.
 (h) At the reappearance *Jupiter* appeared of a faint livid colour, belts very black. As the distance between the Moon and *Jupiter* increased the western limb gradually recovered its normal colour, which slowly spread over the disk, giving the appearance of emergence from a shadow, the belts gradually becoming of a coppery hue.

The clear aperture of the mirror of the Lassell Reflector is 24 inches, of the object-glass of the south-east equatorial 12.8 inches, of the east equatorial 6.7 inches, of the altazimuth 3 ³/₄ inches, of Simms' No. 1 (a detached telescope), 4 inches.

The initials W. C., H. T., C., J. P., and S. D. are those of Mr. Christie, Mr. Turner, Mr. Criswick, Mr. Power, and Mr. Dolman respectively.

Royal Observatory, Greenwich:
 1889 November 12.

Occultation of the planet Jupiter and two Satellites by the Moon on August 7, 1889; observed at the Radcliffe Observatory, Oxford.
By E. J. Stone, Esq., M.A., F.R.S., Radcliffe Observer.

The heliometer and 7-inch telescope were unavailable for the observation of the disappearance, from the obstruction of the view by trees and buildings. The reappearance, from the same cause, could not be observed with the heliometer.

I watched for the reappearance of *Jupiter* with the 7-inch instrument, power 125, but the first appearance was lost from passing cloud. The sky gradually cleared and I was able to see the rest of the phenomena without any interference from cloud. I saw nothing of the nature of distortion or shadow, although, as I had no clock or chronometer, my attention was particularly directed to these points.

The contrast of brightness between *Jupiter* and the Moon was very striking.

Owing to passing cloud the first contact at reappearance was not seen by the three observers stationed near the main building, but it was apparently well observed with the Barclay Equatorial, about 100 yards west.

The following are the times of contacts and remarks, given by the other observers:—

The planet Jupiter.

Disappearance, at Moon's dark limb.

			Local Sidereal Time.			G.M.T. of Observation.			Observer.
			h	m	s	h	m	s	
First contact	...	...	16	4	33.7	7	3	39.0	W.
"	...	...	16	4	35.2	7	3	(40.5)	R.
"	...	...	16	4	39.7	7	3	(45.0)	F. B.
24 dichotomised	...	...	16	5	8.7	7	4	14.0	W.
"	...	...	16	5	15.2	7	4	20.4	R.
Last appearance	...	...	16	6	8.7	7	5	13.8	W.
"	...	...	16	6	8.5	7	5	13.6	R.
"	...	...	16	6	8.2	7	5	13.3	F. B.

Reappearance, at Moon's bright limb.

First contact	...	...	16	59	5.1	7	58	1.5	R.
24 projecting, say $\frac{1}{8}$ of diameter			16	59	30.7	7	58	27.1	W.
Dichotomised	...	...	16	59	46.7	7	58	43.0	W.
"	...	...	16	59	55.1	7	58	51.4	R.
Last contact	...	...	17	0	56.7	7	59	52.8	W.
"	...	...	17	0	51.6	7	59	47.7	R.